

REMARKS

Claims 1-26 and 29-38 are pending in this application.

I. Rejection Relying Upon Cates

Claims 1-26, 29, 30 and 38 were rejected under 35 U.S.C. §103(a) as allegedly being anticipated by U.S. Patent No. 4,759,770 (Cates). This rejection is respectfully traversed.

By way of background, the invention, as defined in present claim 1, relates to a procedure for removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish, comprising treating the aramide fibers with an agent that comprises at least one hydrophilic fluid, wherein the aramide fibers are present as a short-cut, random fiber or flat textile material, wherein the treating of the short-cut or random fiber is treating in the wash cycle of a washing machine or stirring, and wherein the treating of the flat textile material is treating in the wash cycle of a washing machine, stirring or treating with a water vapor stream, and wherein the at least one hydrophilic fluid is water, dimethyl sulfoxide, a solution of dimethyl sulfoxide in water, an aliphatic cyclic ester with 2 to 4 alkylene groups or an aliphatic alcohol with 1 to 5 carbon atoms.

Cates describes a process for simultaneously dyeing and improving the flame-resistant properties of poly(m-phenyleneisophthalamide) fibers using a swelling agent to introduce a dye and fire retardant into the fiber. An aqueous dimethylsulfoxide solution is preferably used as the swelling agent. See the Abstract.

In the Office Action, the Patent Office asserted that the poly(m-phenyleneisophthalamide) fibers described in Cates were water-insoluble. Applicant does not disagree, but strongly emphasizes that such fact is irrelevant with respect to the claimed process. Specifically, claim 1 of the present application requires that a water-insoluble finish on aramide fibers be removed. The Patent Office has merely stated a property of the fibers described in Cates, which indicates nothing regarding the properties of any finish thereon.

That is, the fact that the poly(m-phenyleneisophthalamide) fibers described in Cates are water insoluble does not indicate that such fibers have any finish thereon at all, much less a water-insoluble finish.

The Patent Office appears to treat the fibers and a finish on the fibers as being one and the same, which is incorrect. The ordinary meaning of "finish," as confirmed by any English dictionary, is a final coating on a surface. A finish is thus a coating that is a distinct material from the thing coated with the finish. Applicant clearly used the term "finish" in its ordinary sense in the present application, as confirmed in the specification at, for example, paragraphs [0002] to [0005] wherein it is described that before aramide fibers can be recycled, it is necessary to remove finishes (i.e., coatings) of distinct water-insoluble materials from the surface of the aramide fibers, and that the present invention achieves a simple and straightforward method for achieving such removal. Applicant respectfully submits that the Patent Office's attempted equating of the fiber itself to a fiber having a finish thereon is improper, and the rejection must fail as nowhere does Cates teach or suggest aramide fibers having a water-insoluble finish thereon, much less teach or suggest a method of removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish.

Even if the ordinary meaning of "finish" was completely ignored and the Patent Office's assertion that Cates' description of poly(m-phenyleneisophthalamide) fibers constituted description of an aramide fiber with a water-insoluble finish thereon, the rejection must still fail as improper. This is because it would be necessary for the Patent Office to then establish that in the treatment of the fibers with the dye and fire retardant, that portion of the fibers that the Patent Office somehow identifies as the water-insoluble finish portion would always necessarily be removed (since reliance upon an inherency theory requires the Patent Office to establish a reasonable basis that the allegedly inherent result will necessarily always be achieved by following the teachings of a prior art reference). The Patent Office has

completely failed to provide (1) any explanation of what portion of the fibers allegedly consist of the finish coating and (2) any basis to assert that the treatment of the fiber in Cates would necessarily always remove such finish portion of the fibers.

In fact, Cates itself confirms that the Patent Office cannot establish a basis to conclude that practicing Cates would somehow inherently achieve the claimed procedure. In the paragraph bridging columns 3 and 4 of Cates, it is explained that in the dyeing/fire retarding process of Cates, little to no damage occurs to the fibers. Obviously, if the fibers themselves were somehow found to satisfy a fiber with a finish thereon, the removal of the finish would be removing a part of the fiber, or in other words would cause substantial damage to the fiber in removing that part of the fiber considered to be a finish portion. In view of the fact that Cates describes that little to no fiber damage occurs in the process, there is no basis upon which to assert that following Cates would always and necessarily remove a water-insoluble finish portion of the aramide fibers described in Cates.

Finally, it is emphasized that Cates not only fails to teach or suggest aramide fibers having a water-insoluble finish thereon, Cates also fails to teach or suggest any method that would remove such water-insoluble finish from the aramide fibers as required in the procedure of claim 1. To the contrary, Cates discloses at column 6, lines 20-28 that water-repellants, which are examples of water-insoluble finishes (see the present specification at paragraph [0002], second sentence), may be added to the fibers together with the swelling agent, fire retardant and dye, or as a post-treatment finish after dyeing, heating, washing and drying of the fabric. In other words, Cates describes adding water-insoluble finishes to the fibers, not removing such finishes. Further, the addition of water-insoluble materials in the process of Cates indicates that the polyamide fibers utilized in Cates are not provided with a water-insoluble finish prior to being dyed. Otherwise, the addition of water-repellants would be completely unnecessary.

Cates thus fails to teach or suggest a procedure for removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish as recited in claim 1.

For at least the foregoing reasons, Applicant respectfully submits that Cates clearly fails to teach or suggest the invention of claim 1 or claims dependent therefrom.

Reconsideration and withdrawal of this rejection are thus respectfully requested.

II. Rejection Relying Upon English

Claims 1-8 and 26-38 were rejected under 35 U.S.C. §102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over, U.S. Patent No. 5,855,623 (English). This rejection is respectfully traversed.

English discloses a process for treating polyester, polyamide, acrylic, aramide or cellulose substrates to improve the uniformity of polymerization on the substrate, to provide uniform dyeability and to provide even substrate treatment to improve the hydrophilic properties of the substrates. See the Abstract, col. 3, lines 6-67 and col. 4, lines 18-19.

At col. 13, line 64 to col. 14, line 22, English discloses a process of treating polyamide, acrylic, aramide and cellulose substrates, with reference to polyamide fibers for convenience, and states that treatment of each polymer substrate includes the basic steps of: (1) scouring the fibers with an aqueous alkaline solution to improve the uniform polymerization of the monomer on the substrate fibers by removing knitting oils and waxes; (2) contacting the scoured fibers free from knitting oils and waxes with an aqueous solution having a pH below seven but above where acid degradation of the polymer fiber occurs and a temperature between about 75°C and about 100°C and containing at least one unsaturated monomer to effect single molecule addition of a monomer pendent to the polymer fiber; and (3) polymerizing the monomer on the polymer surface using a polymerization initiator to allow graft polymerization of the monomer on the fiber surface to modify the surface characteristics of the polymer fibers.

In step (1), English requires that the scouring be conducted with an aqueous alkaline solution in order to be effective, and does not teach or suggest scouring with a hydrophilic fluid selected from the group consisting of (a) water, (b) dimethyl sulfoxide, (c) a solution of dimethyl sulfoxide in water, (d) an aliphatic cyclic ester with 2 to 4 alkylene groups and (e) an aliphatic alcohol with 1 to 5 carbon atoms. English requires the presence of the alkaline material in order for the solution to have a certain pH so as to be able to remove knitting oils and waxes, and thus nothing in English would have led one to have omitted the alkaline material and used just water in the scouring procedure of English.

At column 14, lines 52-64, English describes that the alkaline solution may have a pH of about 9 to 11 and be made by adding to water sodium phosphate, trisodium phosphate (TSP), tetrasodium pyrophosphate (TSPP), ammonia, soda ash or sodium hydroxide. A scouring agent such as ethoxylated nonylphenol, alcohol ethoxylates, alcohol sulfonates, alkyl benzenesulfonates, or phosphate esters is preferably added to the alkaline solution.

Nowhere does English teach or suggest use of a hydrophilic fluid selected from the group consisting of (a) water, (b) dimethyl sulfoxide, (c) a solution of dimethyl sulfoxide in water, (d) an aliphatic cyclic ester with 2 to 4 alkylene groups and (e) an aliphatic alcohol with 1 to 5 carbon atoms for any use whatsoever, much less to remove a water-insoluble finish from an aramide fiber.

In the Office Action, it was asserted that the present claims do not exclude the use of the alkaline aqueous solutions of English. Applicant disagrees with the conclusion of the Patent Office.

First, the hydrophilic fluid to be used in the procedure of present claim 1 is defined as a Markush group. Proper Markush group language is either "wherein R is selected from the group consisting of A, B, C and D" or "wherein R is A, B, C or D." These alternative phrases have the same meaning in defining a Markush group. See MPEP §2173.05(h).I. (final

paragraph before "Subgenus Claim"). For a reference to satisfy a Markush group limitation, the reference must teach at least one member of the group. See MPEP §803.02 regarding examination of Markush-type claim language. Thus, it is incorrect for the Patent Office to assert that limiting the hydrophilic fluids to only those specified in the Markush group does not exclude the non-recited alkaline solutions of English.

Second, English fails to teach or suggest any of the hydrophilic fluids required in claim 1 of the present application. As such, English clearly fails to teach or suggest the claimed procedure. Nothing in English would have led one to have used the recited hydrophilic fluids in place of or in conjunction with the harsh aqueous alkaline solutions required by English.

Finally, the Patent Office has asserted that English also described the use of surfactants. However, these surfactants are not used in the scouring procedure. English describes such surfactants at column 7, lines 4-38 as possibly being included to form an emulsion with the monomer utilized in step (2) of English. English does not teach or suggest the use of such surfactants in the scouring step (1) therein. Further, this step (2) in English cannot be found to have taught or suggested the procedure of present claim 1 because the fibers in step (2) in English have already been subjected to scouring and thus would not have a water-insoluble finish thereon. That is, exposure of the fibers in English to the monomer emulsion in order to coat the monomer upon the surface of the polymer fiber completely fails to teach or suggest a procedure for removing a water-insoluble finish from an aramide fiber having a water-insoluble finish thereon. The step (2) in English thus describes the addition of a monomer layer on the fiber surface and cannot be found to have taught or suggested the procedure of claim 1 of the present application.

For at least the foregoing reasons, Applicant respectfully submits that nothing in English would have taught or suggested the invention of present claim 1 or claims dependent

therefrom to one of ordinary skill in the art. Reconsideration and withdrawal of this rejection are respectfully requested.

III. Rejection Relying Upon Ghorashi

Claims 1, 14-25 and 38 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 5,096,459 (Ghorashi). This rejection is respectfully traversed.

Ghorashi teaches a method of dyeing a tow of poly(m-phenylene isophthalamide) fibers, which have been previously dried, comprising patting onto the surface of the fibers an aqueous solution including a carrier and a water-soluble dye, and thereafter heating the fibers with steam. See the Abstract and col. 2, line 49 to col. 3, line 5 of Ghorashi.

Ghorashi nowhere teaches or suggests any procedure for removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish. Ghorashi thus would not have led one of ordinary skill in the art to the present invention.

Ghorashi is highly analogous to Cates with respect to how the Patent Office relies upon the reference in rejecting the present claims. The following discussion thus reiterates the discussion above with respect to Cates.

In the Office Action, the Patent Office asserted that the poly(m-phenylene isophthalamide) fibers described in Ghorashi were water-insoluble. Again, such fact is irrelevant with respect to the claimed process. Specifically, claim 1 of the present application requires that a water-insoluble finish from aramide fibers provided with a water-insoluble finish be removed. The Patent Office has merely stated a property of the fibers described in Ghorashi, which indicates nothing regarding the properties of any finish thereon. That is, the fact that the poly(m-phenylene isophthalamide) fibers described in Ghorashi are water-insoluble does not indicate that such fibers have any finish thereon, much less a water-insoluble finish. Applicant respectfully submits that the Patent Office's attempted equating of the fiber itself to a fiber having a finish thereon is improper, and the rejection must fail as

nowhere does Ghorashi teach or suggest aramide fibers having a water-insoluble finish thereon, much less teach or suggest a method of removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish.

Even if the ordinary meaning of "finish" was completely ignored and the Patent Office's assertion that Ghorashi's description of poly(m-phenylene isophthalamide) fibers constituted description of an aramide fiber with a water-insoluble finish thereon, the rejection must still fail as improper. This is because it would be necessary for the Patent Office to establish that in the treatment to dye and fire retard the fibers, that portion of the fibers that the Patent Office somehow identifies as the water-insoluble finish portion would always necessarily be removed (since reliance upon an inherency theory requires the Patent Office to establish a reasonable basis that the allegedly inherent result will necessarily always be achieved by following the teachings of a prior art reference). The Patent Office here again has completely failed to provide (1) any explanation of what portion of the fibers allegedly consist of the finish coating and (2) any basis to assert that the treatment of the fiber in Ghorashi would necessarily always remove such finish portion of the fibers.

In fact, Ghorashi itself confirms that the Patent Office cannot establish a basis to conclude that practicing Ghorashi would somehow inherently achieve the claimed procedure. In Example 1 of Ghorashi, it is indicated at the top of column 6 that the fibers before and after dyeing had substantially the same physical properties. Obviously, if the fibers themselves are somehow found to satisfy a fiber with a finish thereon, the removal of the finish would be removing a part of the fiber, and such would cause the physical properties of the fiber before and after dyeing to be substantially changed in that a significant part of the fiber that is considered to be a finish portion would have been removed. In view of the fact that Ghorashi describes that substantially no change in physical properties of the fiber occurs in the process, there is no basis upon which to assert that following the process of Ghorashi would always

and necessarily remove a water-insoluble finish portion of the aramide fibers described in Ghorashi.

Finally, it is emphasized that Ghorashi not only fails to teach or suggest aramide fibers having a water-insoluble finish thereon, Ghorashi also fails to teach or suggest any method that would remove such water-insoluble finish from the aramide fibers as required in the procedure of claim 1. While the Patent Office cited Example 1 (acetophenone) and Example 2 (benzyl alcohol) of Ghorashi, neither of these materials in Ghorashi is within the hydrophilic fluid Markush group of claim 1. Benzyl alcohol is not an aliphatic alcohol of 1 to 5 carbon atoms, but is an aromatic alcohol with 7 carbon atoms. Ghorashi thus fails to teach or suggest a procedure for removing a water-insoluble finish from aramide fibers provided with a water-insoluble finish as recited in claim 1 for this additional reason.

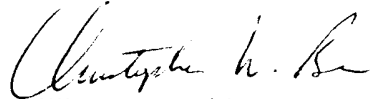
For at least the foregoing reasons, Applicant respectfully submits that nothing in Ghorashi would have led one of ordinary skill in the art to the presently claimed invention of claim 1 or claims dependent therefrom. Reconsideration and withdrawal of this rejection are thus respectfully requested.

IV. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-26 and 29-38 are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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